

Prior Art FX Settlement Fig. 1

Process

Trade Date	Settlement Date	Reconciliation Date
<ul style="list-style-type: none"> •Parties transact a series of transactions in various currency pairs •Parties send confirmations of each trade MT300 •Parties match MT300s to create a confirmed trade •Parties instruct payment of sold currency leg for each trade •Parties pre-advice receipt of bought currency leg for each trade 	<ul style="list-style-type: none"> •Branch or nostro constructs payment queue •Branch or nostro releases payments as liquidity in local payment system allows •Branch or nostro sends MT900 to confirm payments •Branch or nostro sends MT910 to confirm receipts •Branch or nostro sends MT950 daily statement of account activity 	<ul style="list-style-type: none"> •MT950s from all branches and nostros reconciled to match payment and counterpayment (receipt) settlement of transactions •Exception report of failed settlements generated •Failed settlements queried with counterparties •Decisions on default/payment suspension taken after investigation •Payments at branches and nostros cancelled on a “best efforts” basis

Fig. 2

Risk

PAYMENT RISK = The risk of loss should an expected payment not be received in a timely manner

CROSS-BORDER SETTLEMENT RISK = The Payment Risk arising in settlement of foreign exchange trades where payment must be made in one currency in expectation of counterpayment being received in another currency

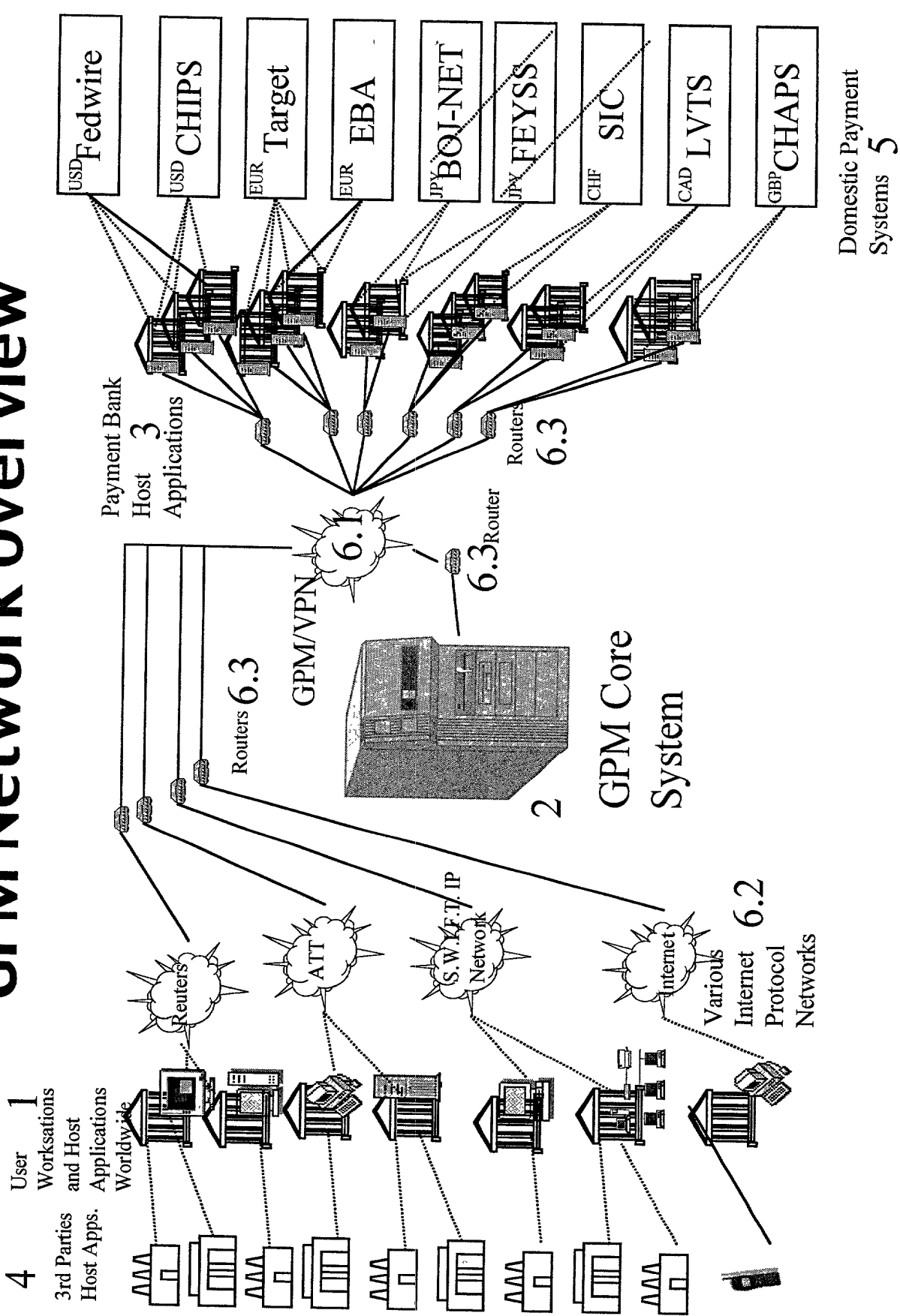
LIQUIDITY RISK = The direct and contingent costs or penalty associated with unanticipated receipt shortfalls

SYSTEMIC RISK = Risk associated with the general health or structure of the financial system as a result of inability to cope with a financial default or liquidity shock

Copyright © 1995 by International Technology Corporation. All rights reserved. This document is the property of International Technology Corporation. It is to be used only for the purposes for which it was prepared and is not to be distributed, copied, or reproduced in any form without the prior written permission of International Technology Corporation.

Fig. 3

GPM Network Overview



GPM System

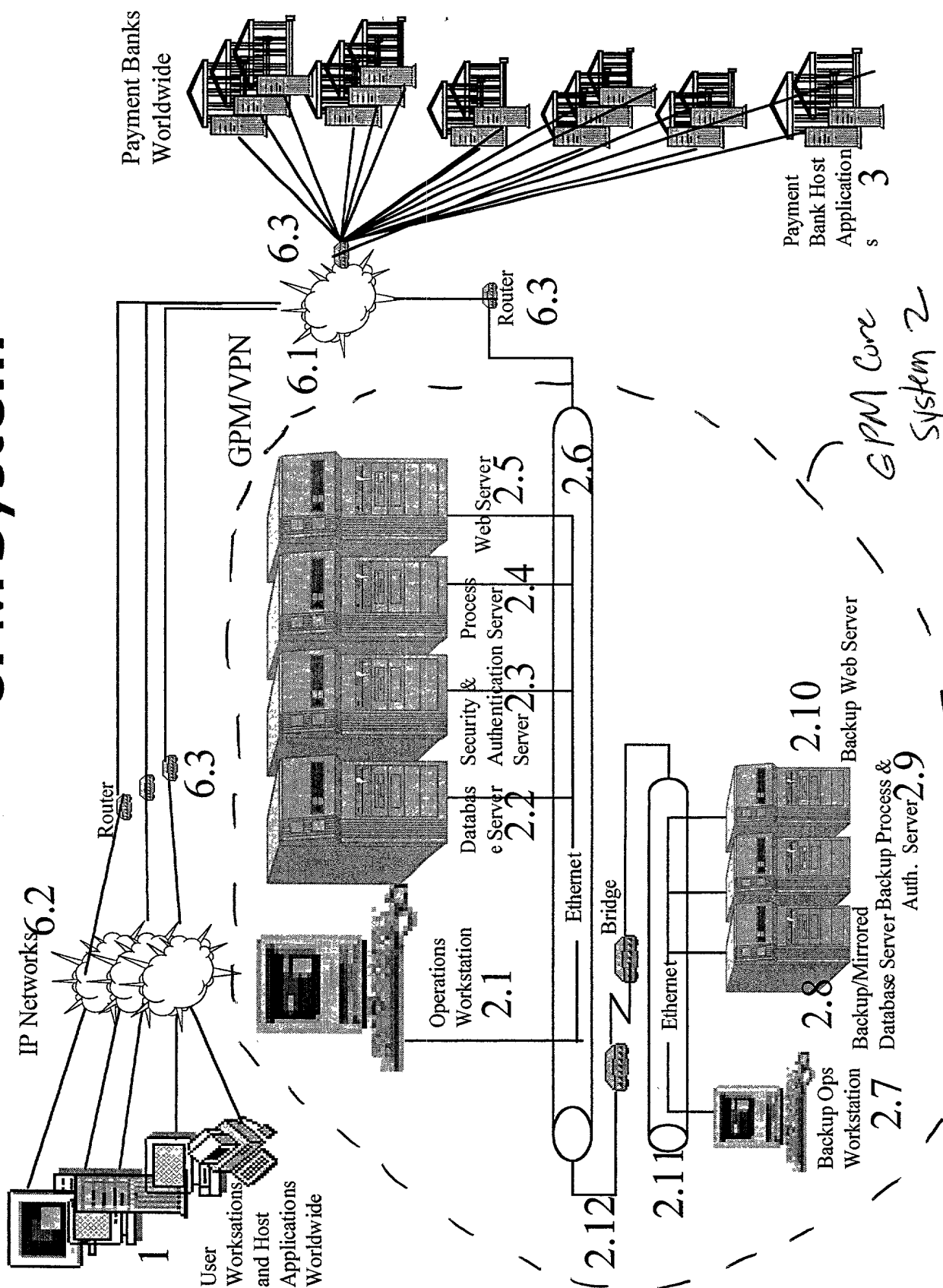


Fig. 5

GPM Access Security

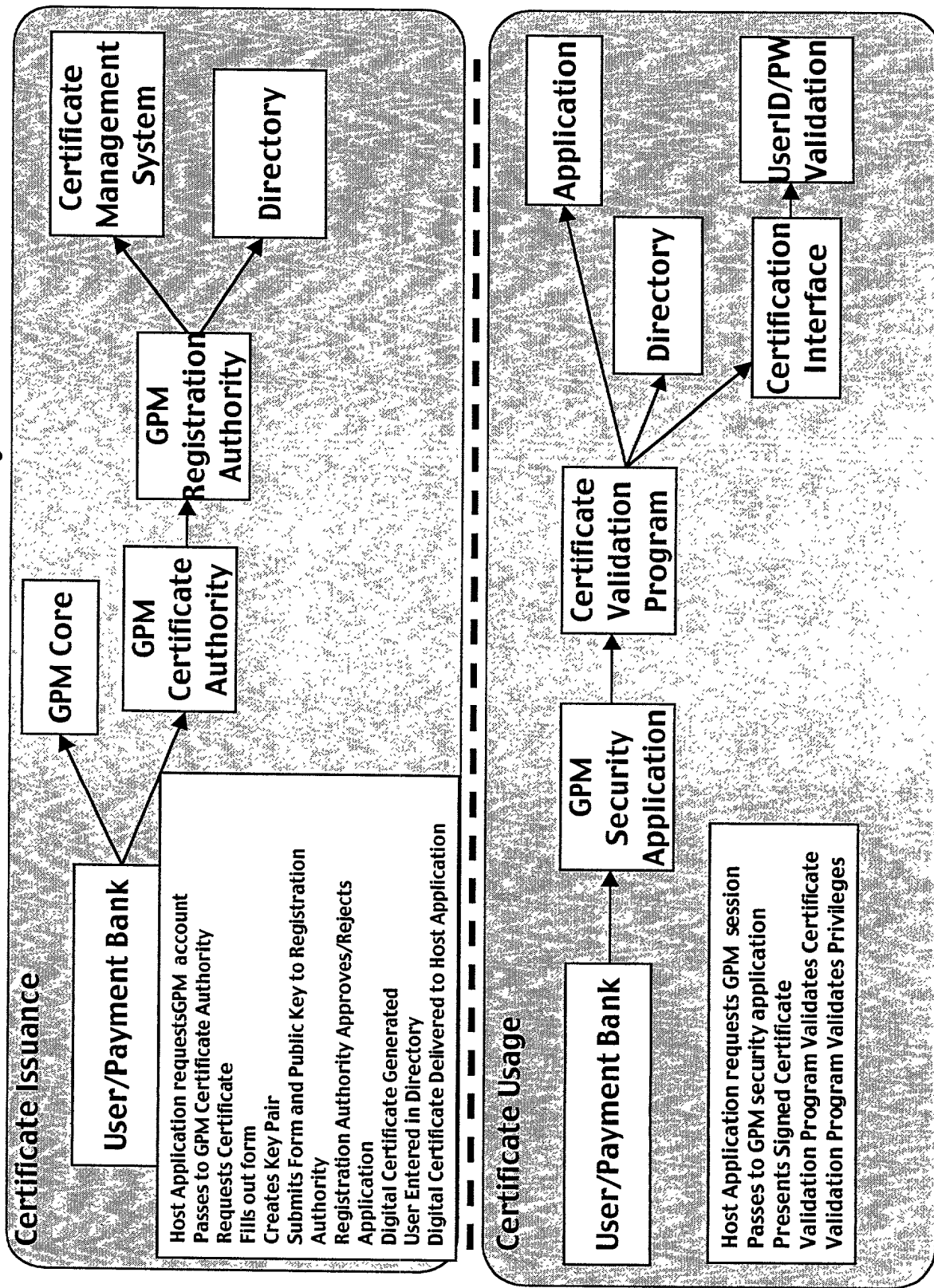


Fig. 6

GPM FX Settlement Process

Trade Date	Settlement Date	Reconciliation Date
<ul style="list-style-type: none"> •Parties transact a series of transactions in various currency pairs •Parties send confirmations of each trade MT300 •Parties match MT300s to create a confirmed trade •Parties instruct payment of sold currency leg for each trade to Payment Bank •Parties pre-advice receipt of bought currency leg for each trade •Parties advise GPM Payment Banks of Risk Parameters 	<ul style="list-style-type: none"> •Payment Bank constructs payment queue •Payment Bank Host Application releases payments through GPM Filter Process •Payment Bank sends MT900 to confirm payments and MT910 to confirm receipts •Payment Bank Host App. notifies sustained imbalance as observed •Exception queries, Suspend Process and liquidity management decisions taken intraday •Payment Bank sends MT950 daily statement of account activity 	<ul style="list-style-type: none"> •MT950s from all branches and nostros reconciled to determine settlement of transactions •Follow-up on individual failed settlements / defaults

USER

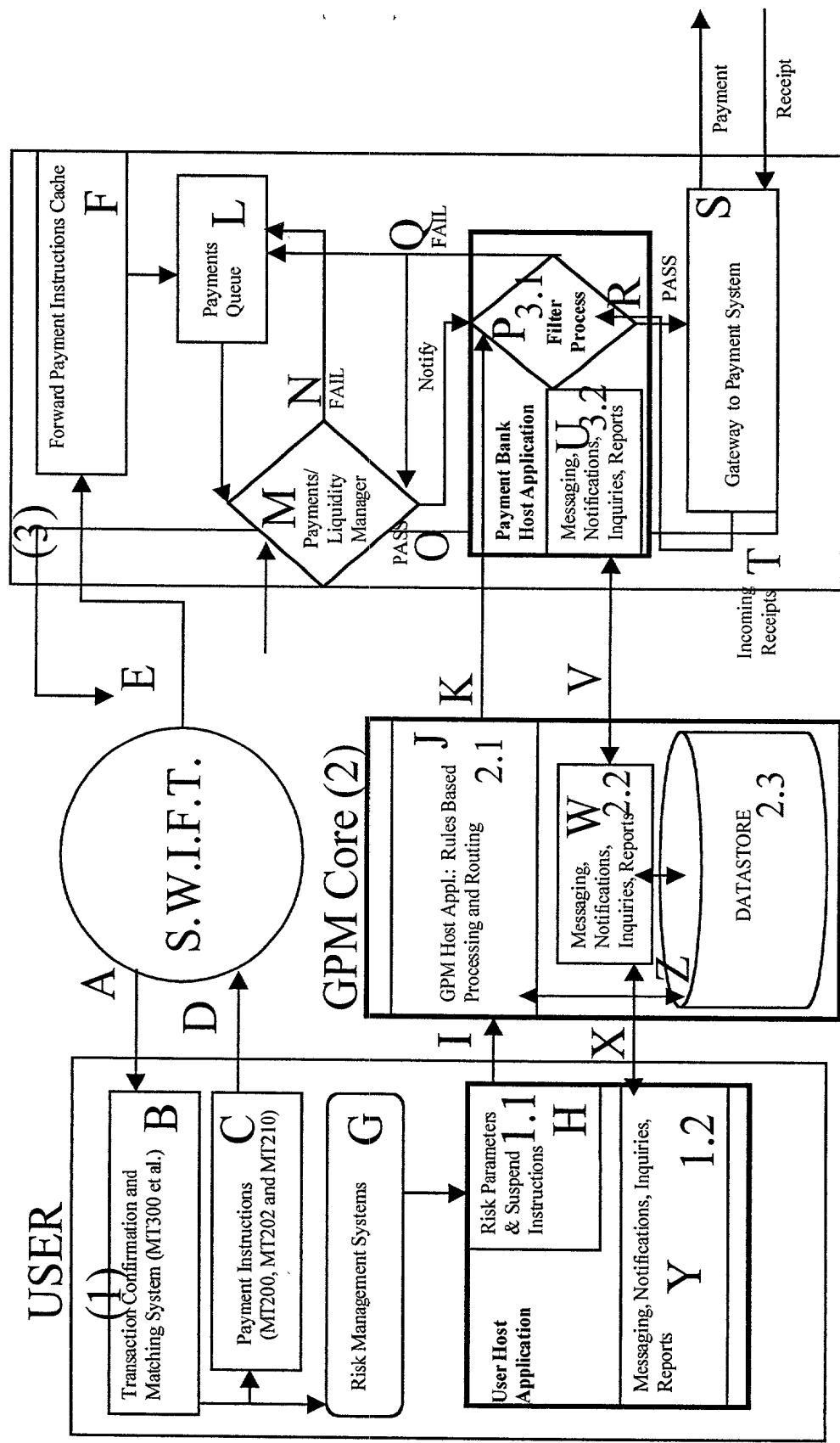


Fig. 7

Fig. 8

GPM in Action

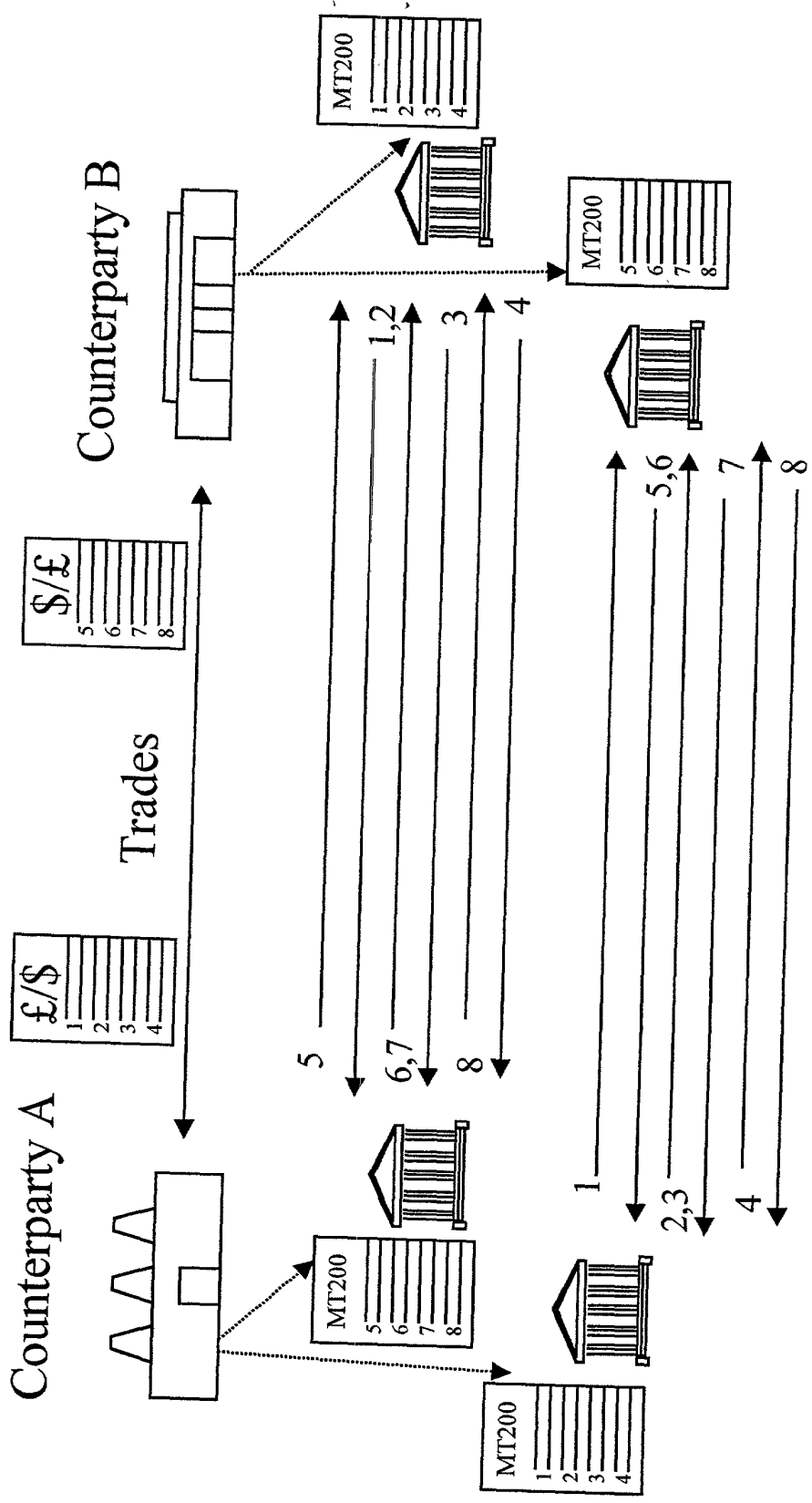


Fig. 9A1

Risk Parameter Instruction Process

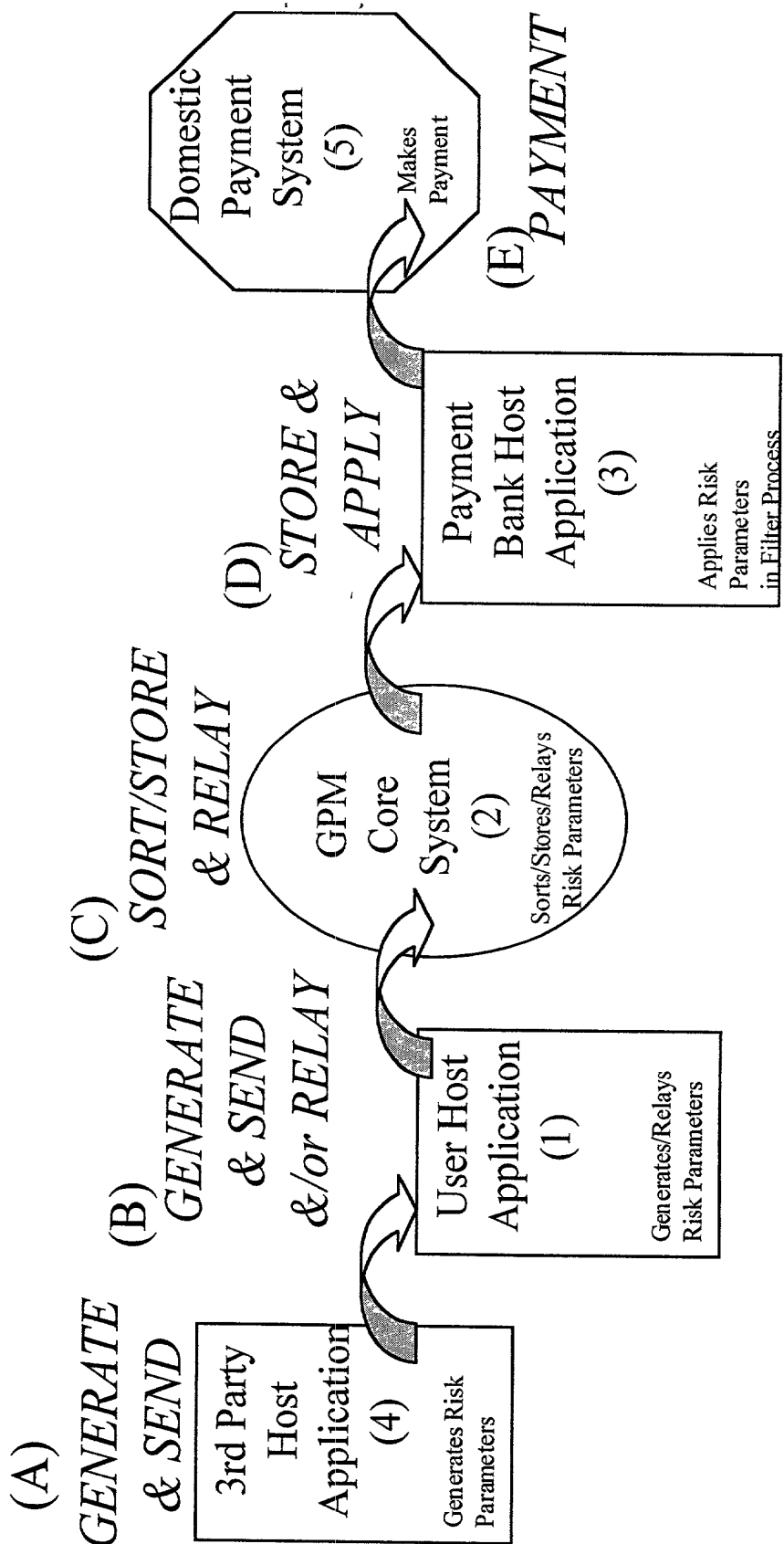


Fig. 9A2

Risk Parameter Instruction Fields

Status	Tag	Field Name	Content/Options	No
M	52a	USER	4a2a2b[3b]	1
O	50	THIRD PARTY (Ordering Customer)	4a2a2b[3b]	2
M	53a	PAYMENT BANK (Sender's Correspondent)	4a2a2b[3b]	3
----	----	----	----	----
M	59 56A/57A	COUNTERPARTY (Beneficiary Customer or Payment Intermediary)	4a2a2b[3b] <BIC>	4
----	----	----	----	----
M	32A	CLEAN PAYMENT LIMIT [Value Date] Currency Code Amount	[6n] 3a 15d	5
----	----	----	----	----
O	<XX>	PAYMENT TYPE	<2a3n[4a]>	6
----	----	----	----	----

USER
Definition: The Unique Identifier (UID) of the User institution initiating the instruction on behalf of itself or a Third Party. **Format:** 4a2a2b[3b]

THIRD PARTY

Definition: The UID of the Third Party initiating the instruction to the User. **Format:** 4a2a2b[3b]

PAYMENT BANK

Definition: The BIC code of the Payment Bank. **Format:** 4a2a2b[3b]

COUNTERPARTY

Definition: The UID of the Payment Beneficiary or BIC of a Payment Intermediary. **Format:** 4a2a2b[3b]
Multiple instances of this field are permitted.

CLEAN PAYMENT LIMIT

Definition: [Value date] (optional), currency code and amount of Clean Payment Limit.
Format: [6n] date (YYMMDD)
3a currency code
15d amount

PAYMENT TYPE

Definition: Descriptor(s) of Payment Types for Filter Process. **Format:** 2a3n[4a] (e.g., proprietary or customer, minimum payment amount, payment channel)
Where this optional field is left blank, the GPM Filter Process will apply to all payments made on behalf of a referenced User/3 Party to a referenced Counterparty. Multiple instances of this field are permitted.

Fig. 9B

Risk Parameters

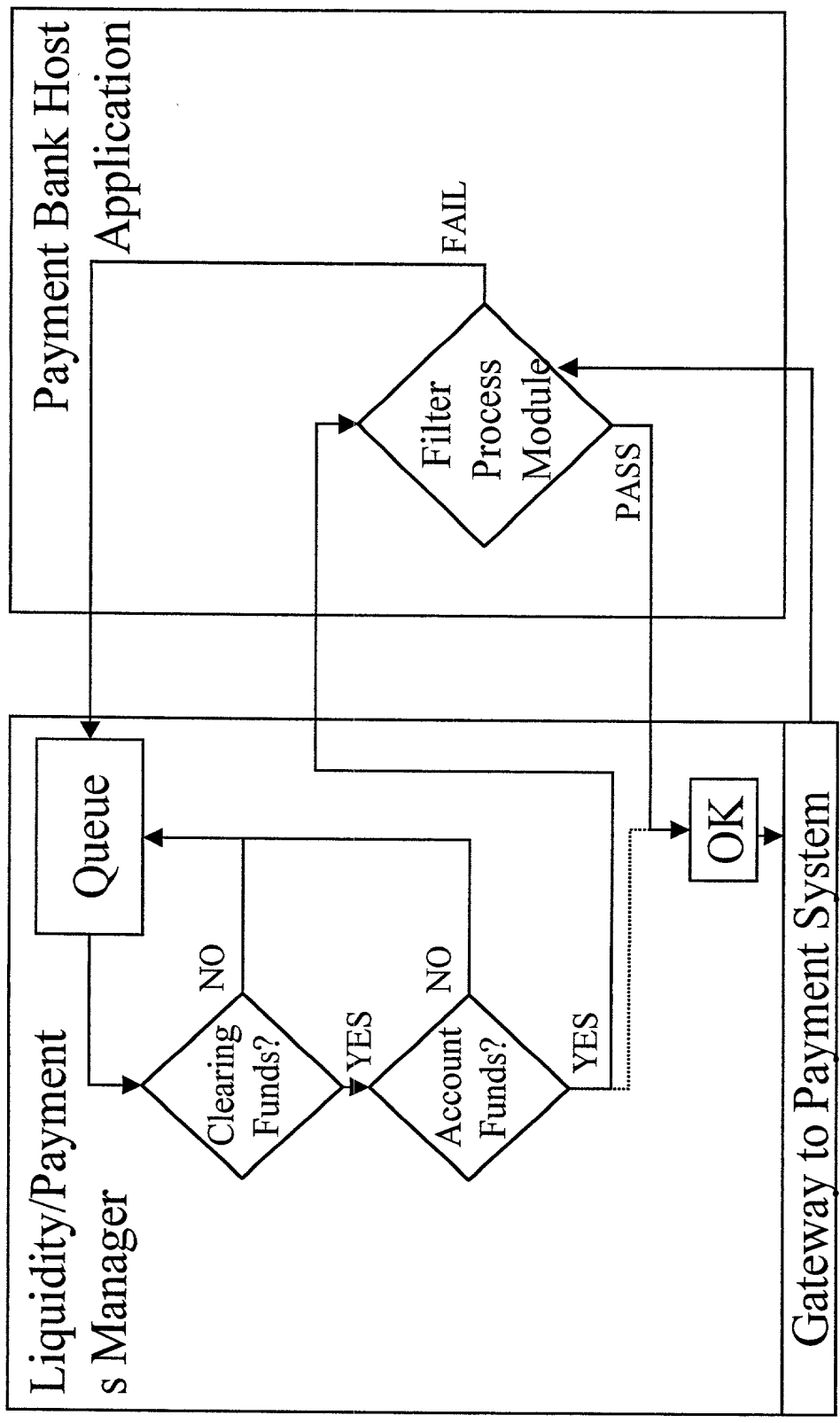
COUNTERPARTY: A defined entity (or aggregation of entities) described on a payment transaction as either the payment beneficiary or a payment intermediary through reference to industry standard identifiers used in payments messaging.

CLEAN PAYMENT LIMIT: Value threshold on payments from a User/3rd Party as “Payor” in respect of a designated Counterparty. This parameter acts as a debit cap on payments vis-à-vis the designated Counterparty.

PAYMENT TYPE: Given payment type descriptors, allows selection of payment types for subjecting to the Filter Process.

Fig. 9C

PAYMENT BANK APPLICATION INTEGRATION



GPM Filter Process

- Step A: Identify Payor
- Step B: Assess whether Payor is GPM User/3rd Party
 - If NO then PASS payment instruction; If YES then
- Step C: Identify Payee and/or Intermediaries
- Step D: Identify whether each Payee/Intermediary is a GPM Counterparty of the User/3rd Party
 - If NO then PASS payment instruction; If YES then
- FOR EACH COUNTERPARTY
- Step E1: Check whether Override instructions for Counterparty/Transaction Reference Number
 - If YES then PASS payment + reduce Available Balance & store record of transaction;
 - If NO then
- Step E2: Check whether Counterparty has been Suspended
 - If YES then FAIL payment instruction + NOTIFY & store a temporary record of the transaction;
 - If NO then
- Step F: Identify Payment Type
- Step G: Assess whether Payment Type is selected for GPM Filter Process
 - If NO then PASS payment instruction; If YES then
- Step H: Identify Payment Amount
- Step I: Calculate Available Balance
- Step J: Assess payment amount against Available Balance
 - If payment amount is less than Available Balance then PASS payment instruction; If payment amount is more than Available Balance then FAIL payment instruction + NOTIFY & store a temporary record of the transaction;
- Step K: Reduce Available Balance for Counterparty by Payment Amount & store a temporary record of the transaction

The Filter Process will serially assess multiple Counterparties where both intermediaries and ultimate payment beneficiary are Counterparties.

U.S. GOVERNMENT PRINTING OFFICE: 1975 O 280-000

Fig. 9D2

GPM Filter Process

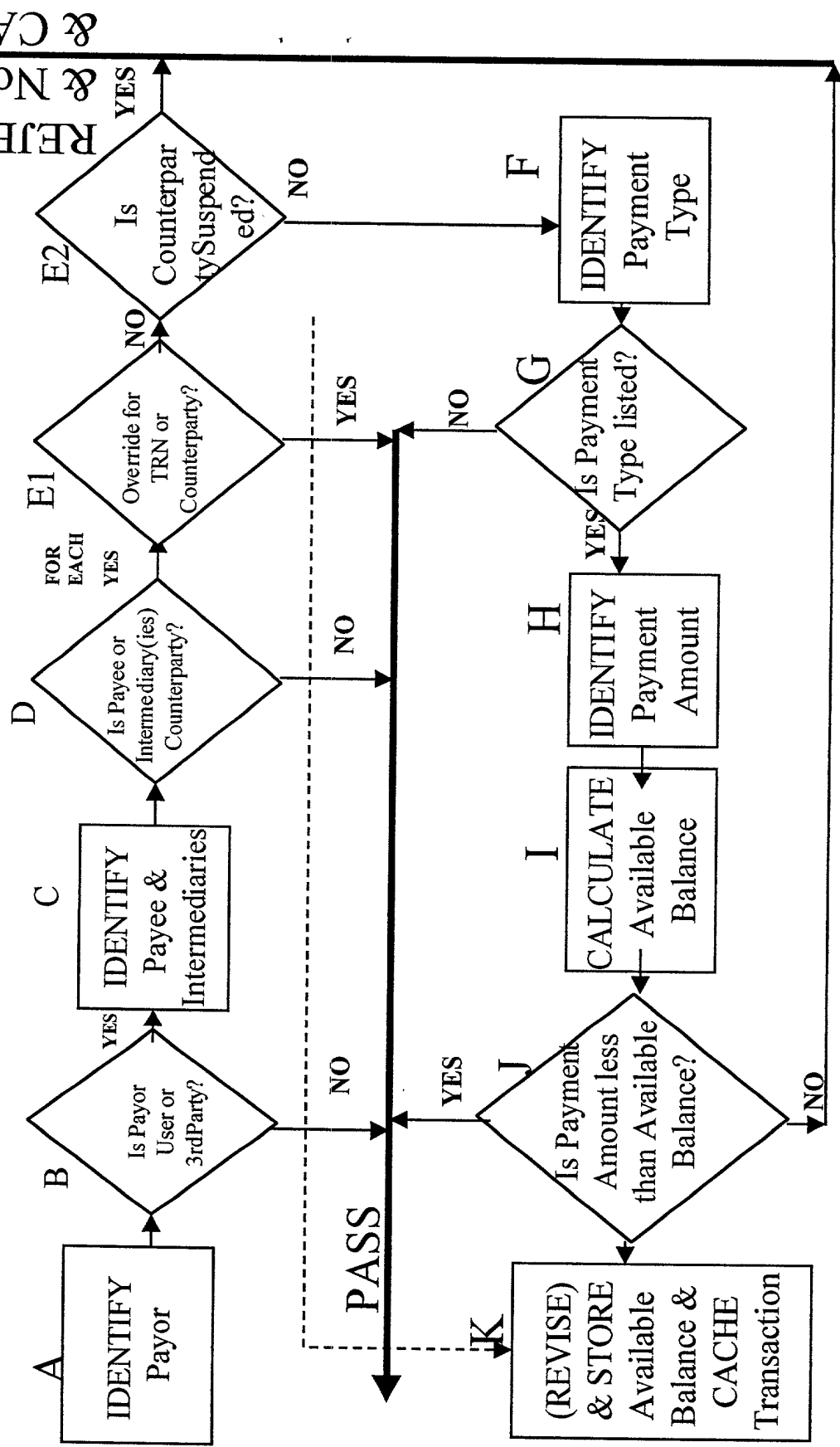


Fig. 9E1

Step I: Calculating Available Balance

Step I.1: Identify User/3rd Party

Step I.2: Identify Counterparty

Step I.3: Identify last stored Available Balance

3a: Available Balance will be Clean Payment Limit for initial processing

3b: Available Balance last stored by Process Filter

3c: Where Clean Payment Limit is amended intraday, the difference between the new CPL and the old CPL will be added to the stored Available Balance to either increase or decrease the Available Balance accordingly

Step I.4: Generate Inquiry to bank payment/account systems OR take data stream from incoming payments messages specifying Counterparty as a “Payor” or payment intermediary and specifying User/3rd Party as payment recipient since last timestamp

Step I.5: IF payments received, THEN total all payment amounts specified in all received payments

Step I.6: Add all received amounts to the last calculated Available Balance

Step I.7: Store & publish (revised) Available Balance to Filter Process

Fig. 9E2

Step I: Calculating Available Balance

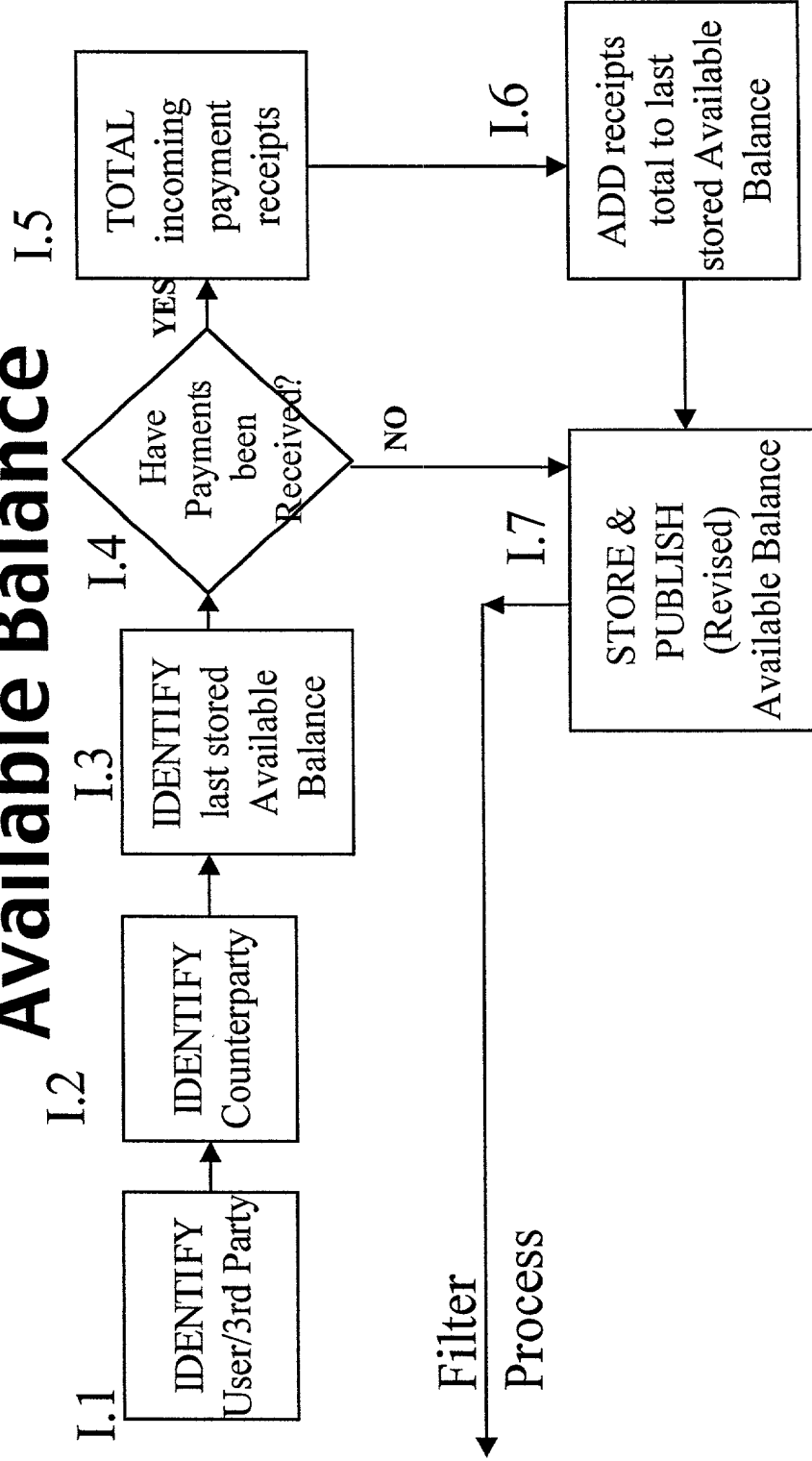
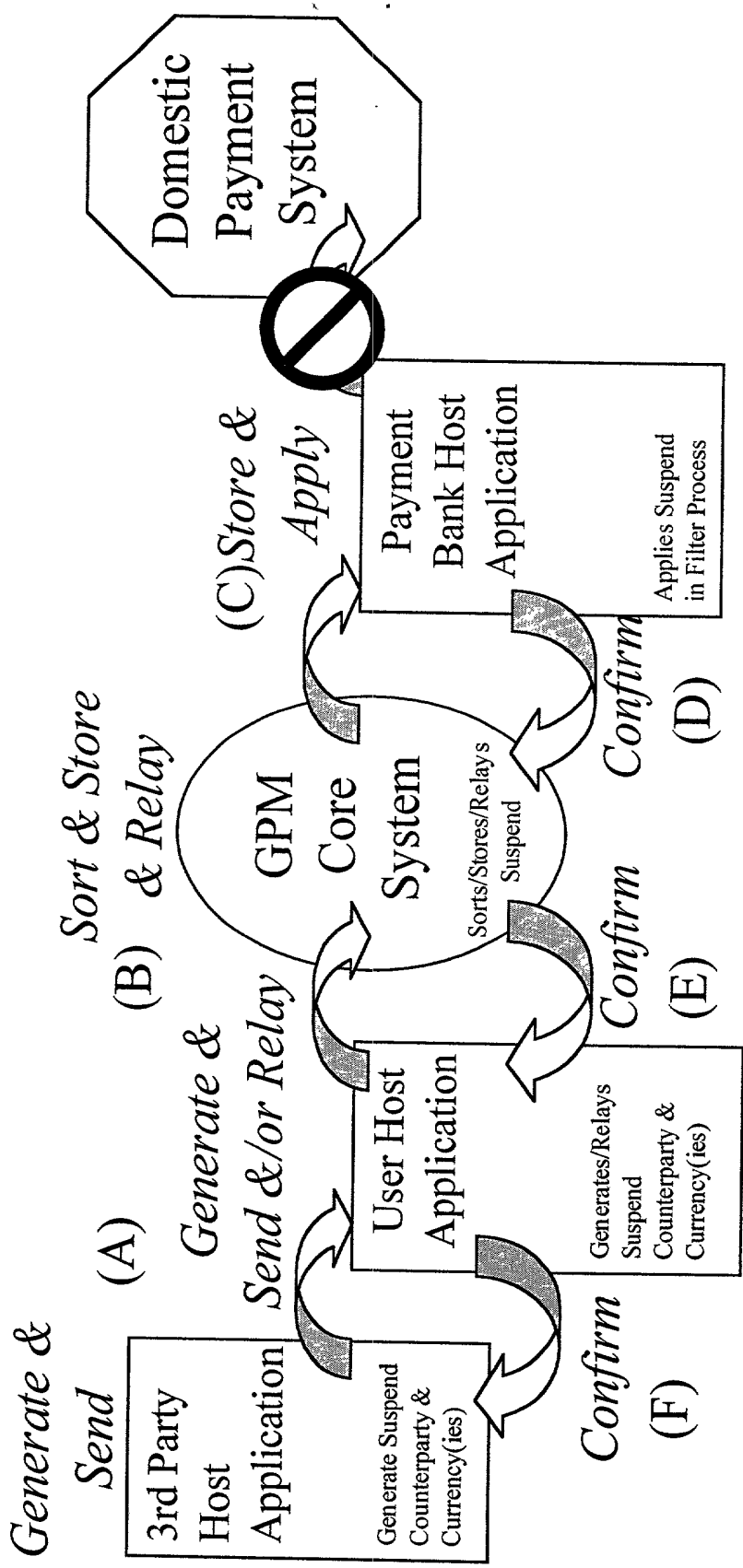


FIG. 9F1 is a flowchart illustrating the GPM Suspend Process. The process begins with a 3rd Party Host Application (A) generating and sending a suspend request to the GPM Core System. The GPM Core System then sorts and relays the request to the User Host Application (B). The User Host Application generates and relays the request to the Payment Bank Host Application (C). The Payment Bank Host Application applies the suspend request to the Domestic Payment System (D). The Domestic Payment System then confirms the suspend request back to the Payment Bank Host Application (E). The Payment Bank Host Application confirms the suspend request back to the User Host Application (F). The User Host Application then confirms the suspend request back to the GPM Core System (G). The GPM Core System then confirms the suspend request back to the 3rd Party Host Application (H). The process ends with the 3rd Party Host Application confirming the suspend request (I).

Fig. 9F1

GPM Suspend Process



Status	Tag	Field Name	Content/Options	No
M	52a	USER	4a2a2b[3b]	1
O	50	THIRD PARTY (Ordering Customer)	4a2a2b[3b]	2
M	53a	PAYMENT BANK (Sender's Correspondent)	4a2a2b[3b]	3
M	59 56A/57A	COUNTERPARTY (Beneficiary or Intermediary)	4a2a2b[3b]	4
			<BIC>	
M	<XX>	SUSPEND INSTRUCTION	7a	5

Definition: The Unique Identifier (UID) of the User institution initiating the instruction on behalf of itself or a Third Party.

Format: 7a (e.g., "suspend")

Fig. 9F3

GPM Suspend Process

3rd PARTY/USER HOST APPLICATION

- Step A.1: Select Counterparty
- Step A.2: Select Currency(ies)
- Step A.3: Select Suspend Instruction
- Step A.4: Generate Suspend Instruction
- Step A.5: Confirm Suspend Instruction

GPM CORE SYSTEM APPLICATION

- Step B.1: Receive Suspend Instruction
- Step B.2: Identify Payment Bank(s) for selected Currency(ies)

PAYMENT BANK HOST APPLICATION

- Step B.3: Send Suspend Instruction to Payment Bank Host Applications
- Step C.1: Receive Suspend Instruction
- Step C.2: Apply SUSPEND in Step 5 of Filter Process
- Step D: Confirm Suspend Instruction Implemented
- Step E: Confirm Suspend Instruction Implemented
- Step F: Receive Confirmation Suspend Instruction Implemented

Fig. 10

GPM Risk Reduction

- Clear limits on Payment Risk and Liquidity Risk
- Effective elimination of Systemic Risk
- No disruption to existing payment mechanisms
- Unilateral choice of Risk Parameters and GPM implementation with counterparty

